



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/529,343

03/25/2005

James Hayden Brownell

434817

8895

7590

01/28/2009

Curtis A Vock
Lathrop & Gage
4845 Peal East Circle
Suite 300
Boulder, CO 80301

EXAMINER

STAFFORD, PATRICK

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

01/28/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/529,343
Filing Date: March 25, 2005
Appellant(s): BROWNELL, JAMES HAYDEN

Josh C. Snider
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 26 November 2008 appealing from the Office action mailed 21 March 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,852,956	KRAMER	8-1989
5,263,043	WALSH	11-1993
4,972,075	HAMADA	11-1990

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (U.S. Patent 4,852,956, hereafter '956) in view of Walsh (U.S. Patent 5,263,043, hereafter '043).

Claim 2: '956 teaches a grating horn, comprising:

a flat base (col. 11, lines 21-22 and Fig. 5, part 44) and a pair of grating elements attached to the base (col. 11, lines 25-31 and Fig. 5, parts 50 and 52), each of the grating elements being ruled with a grating period (col. 5, lines 16-18), the grating elements oriented in phase and in substantial symmetry about a normal to the flat base (col. 11, lines 54-65).

'956 does not explicitly teach the electron beam interacting with the grating elements produces Terahertz radiation. However, '043 teaches the use of grating elements (col. 4, lines 20-24) interacting with an electron beam producing Terahertz radiation (col. 3, lines 59-62) in order to provide a tunable FEL device. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use a grating element interacting with an electron beam producing Terahertz radiation (col. 3, lines 59-62) in order to provide a tunable FEL device.

Art Unit: 2828

Claim 3: '956 and '043 teach the grating horn of claim 2. '956 teaches the grating elements forming a V-groove and vertex to the flat base (Fig. 5, formed in between parts 56 and 58).

Claim 4: '956 and '043 teach the grating horn of claim 3. '043 teaches each of the grating elements being ruled perpendicular to a face of the grating element (col. 10, lines 56-59).

Claim 5: '956 and '043 teach the grating horn of claim 3. '956 teaches the vertex intersecting the flat base (Fig. 5, formed in between parts 56 and 58 intersecting base 44).

Claim 7: '956 and '043 teach the grating horn of claim 3. '956 teaches the vertex comprising a flat portion (Fig. 5, formed in between parts 56 and 58).

Claim 8: '956 and '043 teach the grating horn of claim 3. '043 teaches the rulings of the grating elements are parallel to the flat base (col. 11, lines 7-11 and Fig. 9A, part 16).

Claim 9: '956 and '043 teach the grating horn of claim 3. '043 teaches each of the grating elements forms a bevel edge, wherein each of the grating elements is ruled between the bevel edge and the flat base (col. 12, lines 18-24 and Fig. 13A, part 16).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (U.S. Patent 4,852,956, hereafter '956) in view of Walsh (U.S. Patent 5,263,043, hereafter '043) and further in view Hamada et al (U.S. Patent 4,972,075, hereafter '075).

Claim 6: '956 and '043 teach the grating horn of claim 3. They do not explicitly teach the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base. However, '075 teaches the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base (col. 6, lines 35-39) in order to give a sharp moiré pattern. Therefore, it would have been obvious to one of ordinary

Art Unit: 2828

skill in that art at the time the invention was made to use a grating with the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base in order to give a sharp moiré pattern.

(10) Response to Argument

Argument I. A. 1. (see page 5, last paragraph-page 8, line 2)

The rejection implicitly admits that neither of the cited references teaches or suggests a grating horn, but merely refuses to consider this feature of the claim on the grounds that that "a recitation a grating horn (sic) has not been given patentable weight because the recitation occurs in the preamble." (See page 2, final paragraph of the March 21, 2008 Office Action). Although the Examiner is correct that the literal words "A grating horn" appear only in the preamble, when taken as a whole, the claim nevertheless is a grating horn. Neither of the cited references have any relation to grating horns, nor could they be simply used as grating horns, and therefore neither is analogous to the pending claims.

The Board should also take note here of the improper Restriction of the claims, noted above. The propriety of this Restriction is not an issue that is before this Board, but the Board should nevertheless find the relationship between the pending claims and the restricted claims highly significant. Independent claims 2 and 11, for example, differ only in that claim 11 is a system claim that features all of the limitations of claim 2 (claim 11 recites "a grating horn" in the body of the claim), plus an electron beam generator. Claim 2 though, affirmatively recites an electron beam within the body of the claim, and the Examiner has never explained how the inclusion of an electron beam generator renders claim 11 patentably distinct from claim 2, which

Art Unit: 2828

already features the electron beam. According to the rationale presented in the rejection, claim 11 would have been allowable merely because the words "a grating horn" appear outside of the preamble of the claim. Claim 2 is clearly generic to claim 11, and the one claim should not be rejected while the other is clearly patentable over the same references.

It was therefore error to have dismissed the grating horn limitation of claim 2 only because of its presence in the preamble. "If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999). A "preamble may provide context for claim construction, particularly, where ... that preamble's statement of intended use forms the basis for distinguishing the prior art in the patent's prosecution history." *Metabolite Labs., Inc. v. Corp. of Am. Holdings*, 370 F.3d 1354, 1358-62, 71 USPQ2d 1081, 1084-87 (Fed. Cir. 2004). Therefore, the "grating horn" language of claim 2 should have been given full patentable consideration.

Had such consideration been given, it would have been apparent that the proposed combination of references did not establish a prima facie case of obviousness, because neither reference teaches or suggests a grating horn. "[C]lear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention." *Catalina Mktg. Int'l v. Coolsavings.com, Inc.*, 289 F.3d at 808-09, 62 USPQ2d at 1785. (Emphasis added). Preamble language must be given patentable consideration when it does not merely "state a purpose or an intended use of the invention, but rather discloses

Art Unit: 2828

a fundamental characteristic of the claimed invention that is properly construed as a limitation of the claim." *Poly-America LP v. GSE Lining Tech. Inc.*, 383 F.3d 1303, 1310, 72 USPQ2d 1685, 1689 (Fed. Cir. 2004). A grating horn is such a fundamental characteristic of the invention.

The Examiner has at least implicitly acknowledged, as a matter of fact, that neither of the two cited references could actually function as a grating horn, whether taken alone or together. When a prior art combination is not capable of performing the intended use as recited in the preamble, then the combination cannot meet the claim. See, e.g., *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). In particular, the device of Kramer has the purpose of reducing distortion in light scanning applications, which is different from some of the main purposes of a grating horn, such as light generation with an electron beam, conversion of incident light into slow-waves bound to the grating surface, magnification of signals, and/or light condensation. Walsh similarly fails to teach or suggest grating horn functionality, whether considered alone, or in combination with Kramer. Because neither reference - alone or together - could perform as a grating horn, the proposed combination thus cannot read upon the claims, and therefore the very assertion of obviousness is deficient on its face.

It is well established that a claim, when taken as a whole, can be more than the mere sum of its individual parts. In the classic example, a stool could be comprised of nothing more than a flat disk and three upright rods. The "stool" limitation though, would only appear in the preamble, and the "plates" and "rods" (each known separately in the art) in the body of the claim. A combination of one reference that taught plates with another that taught rods would not, however, read upon a seating apparatus. The "stool" limitation in the preamble would have to be given full patentable consideration. Without the benefit of the new application, there would have

Art Unit: 2828

been no teaching or suggestion to combine a plate and a rod together to create a seating apparatus, regardless of whether plates and rods may have both been known in the art. The same analogy applies to the present case. The mere picking and choosing from the art of elements from claim 2 would not suggest a grating horn. Accordingly, this Board should find that the rejection demonstrates a clear use of impermissible hindsight, and should be withdrawn.

Claims 3-9 all depend directly or indirectly from independent claim 2, and therefore include all of the features of the base claim, plus additional features. Accordingly, this Board should find that claims 3-9 should all be in condition for allowance for at least the reasons discussed above with respect to independent claim 2.

Examiner's Response to Argument I. A. 1.

In response to applicant's argument that the recitation of "a grating horn" as a limitation was dismissed in the rejecting of claim 2, a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). The limitations of claim 2 are met in the teachings of Kramer '956 and Walsh '043, as Kramer '956 teaches a flat base (col. 11, lines 21-22 and Fig. 5, part 44) and a pair of grating elements attached to the base (col. 11, lines 25-31 and Fig. 5, parts 50 and 52), each of the grating elements being ruled with a grating period (col. 5, lines 16-18), the grating elements oriented in phase and in substantial symmetry about a normal to the flat base (col. 11, lines 54-61) and Walsh '043 teaches the use of grating elements (col. 4, lines 20-24) interacting with an

Art Unit: 2828

electron beam producing Terahertz radiation (col. 3, lines 59-62) in order to provide a tunable FEL device. The device taught by the combination of Kramer '956 and Walsh '043 meets the definition of a grating horn as defined in the claimed subject matter of claim 2.

In response to applicant's argument that the preamble recitation of a grating horn distinguishes the claimed invention over the prior art, the term "grating horn" is not a well known term of art and so reliance on the term "grating horn" to distinguish the claimed invention over the prior art is not persuasive, since the system taught by Kramer '956 and Walsh '043 meet the claimed limitations of applicant's definition for a "grating horn" and the definition of the term "grating horn" as disclosed in applicant's specification. In applicant's specification, the term "grating horn" is defined as a "horn" comprising "flared ends", wherein the ends may be ruled (applicant's specification paragraph 35 describing Fig. 3A and 3B). The element taught by Kramer '956 has flared ends opening in at an angle (Fig. 5, parts 52 and 50, angle formed between the parts), wherein the ends are ruled as a grating (col. 11, lines 25-31 and parts 50 and 52). Therefore, the element of Kramer '956 meets the definition of a grating element as defined by applicant's specification and applicant's reliance on the term "grating horn" in the preamble of claim 2 does not distinguish claim 2 over the prior art of Kramer '956 and Walsh '043.

In response to applicant's argument that the new application of the claim limitations of claim 2 in a grating horn is not taught by Kramer '956 and Walsh '043, Kramer '956 teaches the grating horn as defined by applicant (see previous paragraph). The grating horn element of Kramer '956 interacts with an incident beam to emits an output beam (Fig. 5, "incident beam" and output beam shown by arrows). Although Kramer '956 does not explicitly teach the incident beam being an electron beam and the output beam being Terahertz radiation, Walsh '043 the use

Art Unit: 2828

of grating elements (col. 4, lines 20-24) interacting with an electron beam producing Terahertz radiation (col. 3, lines 59-62) in order to provide a tunable FEL device. This combination of Kramer '956 and Walsh '043 teach the structural limitations of the grating horn as defined by applicant's specification as well as the intended use of the grating horn to emit Terahertz radiation. Therefore, applicant's application of the grating horn is taught by the combination of Kramer '956 and Walsh '043.

In response to applicant's argument in regards to the Lack of Unity Restriction Requirement mailed 4 May 2007, the argument is moot, since a Restriction requirement is to be challenged through Petition and not through Appeal (MPEP 818.03 (c)).

Argument I. A. 2. (see page 8, first full paragraph-page 10, first full paragraph)

Despite the fact that neither reference, alone or together, could read upon a grating horn, the Examiner acknowledges that neither reference also fails to teach or suggest a pair of grating elements being oriented in phase. Instead, the rejection merely asserts that Kramer teaches a pair of grating elements that "are adjustable," and that therefore such elements are "capable of being arranged in phase." (Page 3, line 3 of March 21, 2008 Office Action, emphases added). In other words, the Examiner has only asserted that the claimed grating element limitations are possible - though not actually taught or suggested - from the prior art. The rejection submits no evidence, however, to support the conclusory assertion. The only "evidence" in the record in support of the claimed orientation of the pair of grating elements is the Examiner's own unsupported conclusory opinion that the limitation is possible.

The record does not indicate, however, that the claimed in-phase orientation is actually possible from the teachings of either cited reference. The Examiner admits that only Kramer -

Art Unit: 2828

and not Walsh - discusses any orientation of grating elements, but even then, the Examiner has acknowledged that Kramer only teaches that the elements are "adjustable." The reference does not say how adjustable is the orientation of its elements, or more particularly, that the elements can be adjusted to be in phase while the device is operational. In fact, the Board can see that Kramer never even discloses or suggests phase orientation. Only the structural orientation of Kramer's grating surfaces is described, and not their phase orientation. Accordingly, the "adjustability" of the grating elements from Kramer is clearly irrelevant to the present claims.

According to the present Application, the orientation of the phase between the two grating elements is significant because different phase orientations can produce different and distinct emission patterns. Kramer is entirely silent regarding any material factors of the phase orientation. Walsh is relied upon merely for its disclosure of gratings with radiation in the FIR (Terahertz) range. Walsh is equally silent regarding any phase orientation between the grating elements themselves. Therefore, the assertion that the structural adjustability of Kramer will somehow automatically determine the phase orientation of the grating elements is yet another conclusory opinion by the Examiner that has no evidentiary support in the record. Obviousness cannot be established or maintained on such a basis.

Although the standards to establish obviousness have been more fluid recently, the existing standards have not been eliminated. Section 2143.01 of the MPEP, for example, still articulates that obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006). However, citing Kahn specifically in *KSR v. Teleflex*, 550 U.S., 82 USPQ2d 1385 (2007), the

Art Unit: 2828

Supreme Court of the United States held that such "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." 550 U.S. at , 82 USPQ2d at 1396 (emphases added). This reasoning-with-rational- underpinning is the underlying factual inquiry as to whether references can be combined, and this factual inquiry must be based on objective evidence of record, that is, evidence capable of review and rebuttal. See *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002). In the present case though, no such evidence appears in the record.

In essence, the rejection has actually attempted to assert (without actually saying so) a case of inherency. The assertion that in-phase orientation is part of Kramer's device could only be true if such features were inherent. Inherency cannot be established for this limitation of the claims. According to the Examiner's own reasoning, Kramer's pair of grating elements are only "capable of being arranged in phase," but are not necessarily required to do so. Inherency "may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169 F.3d 743,745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (emphases added); see also Section 2112(IV) of the MPEP. Whether a rejection is based on obviousness or anticipation, mere possibilities are not sufficient to establish a prima facie case. By definition, every invention would have been "possible" before it was patented. The rejection asserts nothing more than the fact that one prior art reference was "capable" of being modified to meet the claimed orientation. Section 2143.01(IV) of the MPEP, however, clearly states that an invention merely being within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish prima facie

Art Unit: 2828

obviousness. Evidence is still required that one of ordinary skill would have been motivated to make the asserted capabilities a reality. No such evidence appears on the record.

Accordingly, all of the language of the claims has not been given full patentable consideration, and thus the asserted case of obviousness is deficient on its face for being based on unsupported conclusory statements. All of the recited claim limitations are not taught or suggested in either of the cited references, taken alone or together. For at least these reasons therefore, the Board should reverse the rejection.

Examiner's Response to Argument I. A. 2.

In response to applicant's argument that neither Kramer '956 nor Walsh '043 teach or suggest a pair of grating elements being oriented in phase, Kramer '956 teaches the grating elements being adjustable about the flat base (col. 11, lines 50-54 and Fig. 5, parts 50 and 52 adjusted by 68 and 70). Kramer '956 teaches the need for this adjustability to orient the gratings in phase (col. 11, lines 62-65). In teaching the orientation of the gratings in phase, Kramer '956 refers to the phase of the gratings as "facet periodicity (D values) (col. 11, lines 62-65). The orientation in phase as taught by Kramer '956 is for the same purpose as the one disclosed by applicant, since Kramer '956 teaches orienting the gratings in phase to ensure no cross-scan errors occur (col. 11, lines 63-64). Therefore, the adjustability of the gratings in Kramer '956 teaches the grating elements to be oriented in phase.

In response to applicant's argument that the reliance on Kramer '956 to teach the gratings to be oriented in phase is a conclusory argument, Kramer explicitly teaches the orientation of the gratings in phase (col. 11, lines 62-65). Therefore, it is not conclusory to state that the limitation of the gratings being oriented in phase is taught by Kramer '956, since it is explicitly taught.

Art Unit: 2828

There is no requirement for further evidence to show that Kramer '956 would need to be further altered to orient the grating elements in phase, since Kramer '956 explicitly teaches the adjustability of the grating elements is for the sole purpose of orienting the gratings in phase in order to compensate for possible cross-section scan errors (col. 11, lines 62-65).

Argument I. B. (see page 10, paragraph 2-page 11, second full paragraph)

Even had a proper *prima facie* case of obviousness been established (which Applicant does not concede) this Board should conclude that the *prima facie* case had been sufficiently overcome based on Applicant's rebuttal. The outstanding rejection is based on obviousness, and not anticipation. The advantages that the present claims realize over the prior art are a factor that the Examiner was required to consider in rebuttal of the asserted *prima facie* case. Such advantages, when unchallenged on the record, will be sufficient to overcome the *prima facie* assertion. In the present case, the advantages of the present claims remain unchallenged on the record.

It is undisputed that the invention represented by claim 2 of the present Application will advantageously operate as a grating horn. Regardless of whether the "grating horn" limitations from the preamble are given patentable weight with respect to the asserted *prima facie* case of obviousness, there is no dispute in the record that the grating horn features of the invention are a clear advantage that neither of the cited references, whether taken alone or together, could realize. Advantages realized over the prior art are secondary considerations that need not even be affirmatively recited in the claims. Therefore, the grating horn features of pending claim 2 were at least sufficient to overcome the asserted *prima facie* case of obviousness on rebuttal. In the

Art Unit: 2828

present case, however, it was error for the Examiner to fail to consider these advantages with respect to the rebuttal to the *prima facie* case.

Section 707.07(f) of the MPEP states:

If it is the examiner's considered opinion that the asserted advantages are not sufficient to overcome the rejection(s) of record, he or she should state the reasons for his or her position in the record, preferably in the action following the assertion or argument relative to such advantages. By so doing the applicant will know that the asserted advantages have actually been considered by the examiner and, if appeal is taken, the Board of Patent Appeals and Interferences will also be advised.

The importance of answering applicant's arguments is illustrated by *In re Herrmamz*, 261 F.2d 598, 120 USPQ 182 (CCPA 1958) where the applicant urged that the subject matter claimed produced new and useful results. The court noted that since applicant's statement of advantages was not questioned by the examiner or the Board of Appeals, it was constrained to accept the statement at face value and therefore found certain claims to be allowable. See also *In re Soni*, 54 F.3d 746, 751, 34 USPQ2d 1684, 1688 (Fed. Cir. 1995) (Office failed to rebut applicant's argument).

In the present case, the record is clear that the grating horn features of the present claims have never been questioned. Nor is there any evidence on the record that either of the cited references, whether taken alone or together, could operate or function as a grating horn. Because the appeal is limited to the evidence of record, this Board is "constrained to accept the statement [of these advantages over the prior art] at face value," and find claims 2-9 of the present Application allowable for at least these additional reasons.

Examiner's Response to Argument I. B.

In response to applicant's argument that the advantages to the element claimed in claim 2 to operate as a grating horn was unchallenged and distinguishes it over the prior art, Kramer '956 and Walsh '043 teach the grating horn of claim 2 as well as any advantage presented by applicant

Art Unit: 2828

in response to the rejection. The element taught by Kramer '956 has flared ends opening in at an angle (Fig. 5, parts 52 and 50, angle formed between the parts), wherein the ends are ruled as a grating (col. 11, lines 25-31 and parts 50 and 52) and so meets any structural design advantage of a grating horn as disclosed and claimed by applicant. The grating horn element of Kramer '956 interacts with an incident beam to emits an output beam (Fig. 5, "incident beam" and output beam shown by arrows). Although Kramer '956 does not explicitly teach the incident beam being an electron beam and the output beam being Terahertz radiation, Walsh '043 the functional use of grating elements (col. 4, lines 20-24) interacting with an electron beam producing Terahertz radiation (col. 3, lines 59-62) in order to provide a tunable FEL device. Therefore, the combination of Kramer '956 and Walsh '043 teach the grating horn as both structurally and functionally disclosed and claimed by applicant.

Argument II. A. (see page 11, paragraph 4-page 12, line 2)

The asserted prima facie case of obviousness against claim 6 is deficient on its face for at least the reasons discussed above in traversing the rejection of claim 2. The rejection relies upon Hamada merely for its discussion of a vertex and a flat base, where the vertex does not intersect the flat base. Like Kramer and Walsh, Hamada similarly fails to teach or suggest anything regarding a grating horn, or orienting a pair of grating elements to be in phase. In fact, none of the three cited references even mentions a grating horn or in-phase orientation for a pair of grating elements. For at least these reasons therefore, this Board should reverse the rejection of claim 6.

Examiner's Response to Argument II. A.

Art Unit: 2828

In response to applicant's argument that Hamada fails to teach or suggest anything regarding a grating horn, or orienting a pair of grating elements to be in phase, Hamada '075 was introduced to teach the limitation added in dependent claim 6, requiring the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base. Kramer '956 and Walsh '043 teach the grating horn comprising a pair of grating elements to be in phase, as discussed above in the response to Applicant's Arguments I. Hamada '075 teaches the use of two grating elements flared from a central vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base (col. 6, lines 35-39) in order to give a sharp moiré pattern.

Argument II. B. (see Page 12, first full paragraph-page 13, first full paragraph)

The Board should also reverse the rejection of claim 6 because no rationale has been submitted as to why one of ordinary skill in the art would be motivated to combine Hamada with Kramer and Walsh. In fact, the only "motivation" that is cited from Hamada has nothing to do with the proposed combination of references, and the record shows that there has never been any answer to Applicant's argument that the proposed combination would result in an unworkable device.

With respect to the cited "motivation," Applicant does not dispute that Hamada claims to result in a "sharp moire pattern" in its disclosure. This teaching is irrelevant to the proposed combination. The "sharp moire pattern" cited is relevant only to the teachings of Hamada by itself, and not to the proposed combination of Hamada with the other two references. Section 2143.01 of the MPEP states that the cited motivation must indicate the desirability of the proposed combination, and not merely the desirability of a particular reference by itself. By

Art Unit: 2828

definition, every reference should indicate a desirability to implement its own teachings. Hamada simply does not teach or suggest that the cited "sharp moire pattern" will still result, or be somehow improved, when combined with either of Kramer and Walsh. Accordingly, the standard for combining references in an obviousness rejection, as established by Section 2143.01, have not been met, and the individual rejection of claim 6 is deficient on its face for at least these additional reasons.

Additionally, Applicant points out to the Board that there is no substantive answer or challenge on the record to Applicant's arguments that the proposed combination of Kramer, Walsh, and Hamada would yield an unworkable device. The only response to this argument that does appear on the record is the verbatim quote of the first two sentences of Section 2145(III) of the MPEP. These two sentences have no factual relationship to the issues of this case, and the Board should see that, when Section 2145(III) is considered in its entirety, the record contains no legal rebuttal to Applicant's arguments either.

Considered in its entirety, the express language of Section 2145(III) (the sentence following the two relied upon by the Examiner) is seen to additionally contain the explicit caution "However, the claimed combination cannot ... render the reference inoperable for its intended purpose." (Emphasis added, see also Section 2143.01 of the MPEP). According to this remainder of the entire Section 2145(III) therefore, the language quoted by the Examiner is not a challenge the argument that the proposed combination would be inoperable. Quite the contrary. Section 2145(III) clearly indicates that the inoperable device argument counters the "test" stated by the Examiner, and not vice versa. Kramer, Walsh, and Hamada disclose different structural geometries, and no rationale has been submitted on the record to explain how such different

Art Unit: 2828

structures could be implemented together without rendering the proposed combination inoperable.

Accordingly, Applicant's additional arguments against the proposed combination of Hamada with Kramer and Walsh remain entirely unchallenged on the record, and thus the outstanding obviousness rejection of claim 6 has also been sufficiently rebutted to warrant withdrawal of the rejection for at least these reasons as well.

Examiner's Response to Argument II. B.

In response to applicant's argument that the motivation in combining Hamada '075 with Kramer '956 and Walsh '043 is applicable only to Hamada '075 and not the other references, Hamada '075 teaches the use of two grating elements flared from a central vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base (col. 6, lines 35-39) in order to give a sharp moiré pattern (col. 6, lines 35-39). In clarifying the advantages of a sharp moiré pattern, Hamada '075 teaches the ability to have an output in areas in which a grating ruling was not previously formed (col. 6, lines 30-34 and lines 40-43). This motivation is applicable to Kramer '956 and Walsh '043, since the separation of the gratings in Kramer '956, for example, results in an area in which the incident beam is not diffracted and so no output is capable of being formed (Fig. 5, in between parts 50 and 52). The extending of the ruling of the gratings into the vertex and the flat base would allow for outputs to be generated, as disclosed in Hamada '075 (col. 6, lines 35-39). Therefore, this motivation is applicable to the other references.

In response to applicant's argument that the combination of Hamada '075 with Kramer '956 and Walsh '043 would result in an inoperable device, Hamada teaches the inclusion of

Art Unit: 2828

rulings of the gratings extending between the vertex and the flat base (col. 6, lines 35-39). The extension of rulings of the gratings in Kramer '956 between the vertex and the flat base would not result in an inoperable device because this extension would not cause any deleterious effects on the operation of the grating of Kramer '956. Instead, the extension of the ruling of the gratings into the vertex and the flat base would allow for outputs to be generated, as disclosed in Hamada '075 (col. 6, lines 35-39). As Hamada '075 has disclosed, this extension does not result in an inoperable device when it occurs in a device which was previously not extended (col. 6, lines 31-40). Instead, Hamada '075 teaches that the previous output of the device would continue to occur in the same areas, but an output would also be possible when the incident beam was incident on the area between the vertex and the flat base, since a ruling of the grating would now be extended there (col. 6, lines 31-40). Therefore, the combination would not result in an inoperable device, but instead, in a device with a wider area of outputs.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/P. S./

Examiner, Art Unit 2828

Art Unit: 2828

Conferees:

/Minsun Harvey/

Supervisory Patent Examiner, Art Unit 2828

/NIMESHKUMAR D. PATEL/

Supervisory Patent Examiner, Art Unit 2879